

REMARKS

Claim 40 has been amended herein to correct a typographical error in the preamble. Claims 1-9, 14, and 31-45 are currently pending.

The following remarks are responsive to the Office action dated August 12, 2004.

General Considerations

This invention relates generally to mine doors and more particularly to mine door leafs for relatively large mine doors. A mine door leaf of the present invention has a central core of a solidified composition and outer panels on opposite faces of the core. The core has a force-transmitting relationship with the panels resulting in an integrated stress-resistant structure. As a result, the mine door leaf is relatively lightweight for its size and is resistant to the substantial stresses of the type encountered in a mine environment.

Rejection of Claims

Claim 1

Claim 1 is directed to a mine door leaf mounted in a mine passage and comprising:

- a) a central core of a solidified composition,
- b) outer panels on opposite faces of the core,
- c) the core having a force-transmitting relationship with the panels constituting the panels and core as an integral stress-resistant structure resistant to stresses to which the door leaf is subjected in a mine, including torsion-induced stresses, shear and bending stresses, and stresses induced by its own weight, and
- d) one or more hinge components on the leaf.

Claim 1 is submitted to be patentable over U.S. Patent No. Re 36,853 (Kennedy '853) in view of U.S. Patent No. 6,481,179 (Zen) in that there is no suggestion or motivation for one of ordinary skill in the art to combine Zen with Kennedy.

Kennedy '853 discloses in Fig. 1 a mine door system having a door frame, a mine door hingedly mounted on the door frame, and a column contractible heightwise without loss of structural integrity to accommodate a convergence of the ceiling or floor of the passageway without any substantial deformation of the door frame. As mentioned by the Examiner, Kennedy '853 fails to disclose a mine door comprising outer panels and a central core of a solidified composition. Moreover, Kennedy fails to suggest such a door.

Zen discloses in Figs. 1 and 2 a frame 2 for a steel clad door comprising a pair of jamb members 5, a header 6 and a sill 7 molded from a composite material. Each of the frame members 5, 6, 7 is channel shaped having a bottom wall 8, 17, 18 and two sidewalls 9, 19, 20. In addition, the jambs have reinforcing diagonal members 12 extending between their sidewalls 9 and longitudinal grooves 21 in the exterior face of the bottom walls 8 for receiving inturned edges 22 of steel cladding panels 3 thereby attaching the panels 3 to the frame 2. Once the panels 3 are mated with the frame 2, the interior can be filled with insulation 4, such as polyurethane. Zen does not teach or suggest that an insulation-filled door would be strong enough for use in a mine.

Applicants' mine door, as explained in detail in applicants' AMENDMENT D filed May 20, 2004, is designed to be both strong and lightweight. Zen, on the other hand, discloses a conventional steel clad door having an insulating material as its core. As mentioned above, Zen does not disclose or suggest using the insulating material for any purpose but to insulate the door. Accordingly, Zen fails to show or suggest a door having panels and core that combine to form an integral stress-resistant

structure resistant to stresses to which the door leaf is subjected in a mine, including torsion-induced stresses, shear and bending stresses, and stresses induced by its own weight. **As a result, one of ordinary skill in the art would have no suggestion or motivation to combine the teachings of Kennedy '853 with Zen in developing the claimed invention.**

In order to establish a prima facie case of obviousness based on a combination of prior art references, **an examiner must set forth some suggestion or motivation to combine the teachings of the prior art references, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art at the time of the invention.**¹ This requirement is justified because virtually all inventions are combinations of old elements.² Thus, if identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue.³ Since there is **no suggestion or motivation to combine Kennedy '853 with Zen**, a prima facie case of obviousness based on a combination of Kennedy '853 and Zen has not been established. Thus, claim 1 is submitted as non-obvious and patentable over the references of record including Kennedy '853 and Zen.

Claims 2-9, 14 and 31-37 depend from amended claim 1 and are believed to be allowable for the same reasons as claim 1.

Applicants now address the Examiner's response, which appear in paragraph 4 of the Office action, to the prior arguments raised by applicants (which are partially repeated herein). The following may be moot if the Examiner finds the proffered remarks persuasive. The Examiner's response to applicants' arguments made in Amendment D mischaracterizes those arguments and is

¹ MPEP § 706.02(j).

² Environmental Designs, Ltd. v. Union Oil Co., 713 F.2d 693, 698, 219 U.S.P.Q. 865 (Fed. Cir. 1983), cert. denied 464 U.S. 1043.

³ Id.

legally incorrect. Applicants are entitled to an Office action which addresses the arguments actually raised by applicants and not different arguments raised and refuted by the Examiner. Accordingly, reconsideration of the rejection is respectfully requested.

The Examiner mischaracterizes applicants' arguments made in Amendment D as an argument based on the references, in combination, failing to teach "a product that has the strength sufficient to function in a mine door environment." That is wholly incorrect. Applicants have presented arguments that there is no suggestion or motivation to combine Kennedy with Zen.

Applicants respectfully request that the Examiner remove the rejections of claims based on these references, or provide some teaching, suggestion, or motivation in the prior art to combine the Kennedy et al. and Zen references.

Claims 2 and 33 recite a mine door leaf wherein the force-transmitting relationship is established by **adhesion and mechanical coupling** or by **mechanical coupling** of the core to the panels. Similarly, claims 7 and 36 recite a mine door leaf wherein the force-transmitting relationship is established by **adhesion and mechanical coupling** or by **mechanical coupling** of the filling to the door panels. Zen also does not teach a door leaf where a force-transmitting relationship is established by mechanical coupling of the core (or filling) to the panels. In Zen, the panels 3 have inturned edges 22 which are secured to grooves 21 in the bottom wall 8 of the jamb members 5. No mechanical devices are used to secure the insulation 4 to the panels 3 probably because its purpose is to provide insulation and not strength to the door. As a result, the references fail to teach each and every element of Applicants' claimed invention. Accordingly, claims 2, 7, 33 and 36 are patentable for these additional reasons.

Claims 34 and 37 recite that the mine door leaf further comprises a mechanical coupling device for mechanical coupling of the core (or filling) to the panels. The mechanical coupling device comprises at least one of wire screen and rebar-type elements. As mentioned above, Zen does not teach or suggest mechanical coupling of the core (or filling) to the panels. Accordingly, Zen cannot teach or suggest the use of either wire screen or rebar-type elements. Accordingly, claims 34 and 37 are patentable for these additional reasons.

Claims 38-45 are directed to a mine door installation including a door leaf of generally laminar construction. To the extent claims 38-45 include the same recitations as claims 1, 33, and 34, respectively, the claims are patentable for the same reasons discussed above with respect to claims 1, 33, and 34.

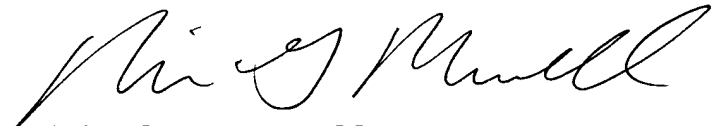
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CONCLUSION

In view of the foregoing, Applicants respectfully request reconsideration and allowance of the application.

The Examiner is invited to telephone the undersigned if the Examiner feels that a telephone interview might expedite allowance.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Michael G. Munsell".

Michael G. Munsell, Reg. No. 43,820
SENNIGER POWERS
One Metropolitan Square, 16th Floor
St. Louis, Missouri 63102
(314) 231-5400

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